



- 21 -

WHAT IS CLAIMED IS:

1. A hybrid drive type vehicle comprising:
  - an internal combustion engine driving a vehicle;
  - a battery charging and discharging an electric power;
  - 5 an electric rotary machine mechanically connected with a crankshaft of said internal combustion engine for starting up said internal combustion engine as driven by the electric power supplied from said battery, and driven by revolution of said internal combustion engine for performing generation for charging said battery;
  - 10 an inverter for controlling driving and generating of said electric rotary machine;
  - a controller controlling said inverter;
  - revolution speed detecting means for detecting a revolution speed of said internal combustion engine or said electric rotary machine;
  - 15 said electric rotary machine being formed with a stator having a primary winding and a rotor having a field magnet, said field magnet being constituted of a first field magnet alternately arranged mutually opposite magnetic poles in sequentially in circumferential direction and a second field magnet capable of causing relative angular displacement
  - 20 relative to said first field magnet and alternately arranged mutually opposite magnetic poles in sequentially in circumferential direction, said first and second field magnets being opposing with a magnetic pole of said stator and having a mechanism for varying a phase of a magnetic pole resulting from combination of said first and second field magnets

relative to the magnetic pole of said first field magnet depending upon direction of a torque of the rotor,

said mechanism for varying the magnetic pole depending upon the direction of the torque including means for aligning centers of the same magnetic poles of said first and second field magnets by balance  
5 between torque direction generated in the rotor and magnetic action between said first and second magnetic and means for causing offset of the center of the same magnet poles of said first and second field magnetic associating with generation of the torque generated in the rotor  
10 in the opposite direction.

2. A hybrid drive type vehicle as set forth in claim 1, wherein said electric rotary machine serves as an electric motor at low revolution speed range and having means for aligning centers of the same magnetic  
15 poles of said first and second field magnets by balance between torque direction generated in the rotor and magnetic action between said first and second magnetic, and serves as a generator at high revolution speed range and having means for causing offset of the center of the same magnet poles of said first and second field magnetic associating with  
20 generation of the torque generated in the rotor in the opposite direction.

3. A hybrid drive type vehicle as set forth in claim 1, wherein said electric rotary machine serves as an electric motor at low revolution speed range and having means for aligning said first and second field



- 23 -

magnets at an initial position by balance between torque direction generated in the rotor and magnetic action between said first and second magnetic, and serves as a generator at high revolution speed range and having means for causing offset of the center of the same magnet poles of  
5 said first and second field magnetic associating with generation of the torque generated in the rotor in the opposite direction, and

said mechanism for varying the center of the magnetic pole associating with variation of the torque direction is constructed by rigidly securing said first magnet on a shaft and separating said second field  
10 magnet from said shaft, and said shaft and said second field magnet are permitted to cause relative angular offset within an angular range corresponding to circumferential length of one magnetic pole for causing offset of the center of the poles of the first field magnet and the center of the poles of the second field magnet.

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4. A hybrid drive type vehicle as set forth in claim 2, wherein said electric rotary machine serves as an electric motor at low revolution speed range and having means for aligning said first and second field magnets at an initial position by balance between torque direction  
20 generated in the rotor and magnetic action between said first and second magnetic, and serves as a generator at high revolution speed range and having means for causing offset of the center of the same magnet poles of said first and second field magnetic associating with generation of the torque generated in the rotor in the opposite direction, and

said mechanism for varying the center of the magnetic pole associating with variation of the torque direction is constructed by rigidly securing said first magnet on a shaft and separating said second field magnet from said shaft, and said shaft and said second field magnet are  
5 permitted to cause relative angular offset within an angular range corresponding to circumferential length of one magnetic pole for causing offset of the center of the poles of the first field magnet and the center of the poles of the second field magnet.

10 5. A hybrid drive type vehicle as set forth in claim 1, wherein said electric rotary machine serves as an electric motor at low revolution speed range and having means for aligning said first and second field magnets at an initial position by balance between torque direction generated in the rotor and magnetic action between said first and second  
15 magnetic, and serves as a generator at high revolution speed range and having means for causing offset of the center of the same magnet poles of said first and second field magnetic associating with generation of the torque generated in the rotor in the opposite direction, and

said mechanism for varying the center of the magnetic pole  
20 associating with variation of the torque direction is constructed by rigidly securing said first magnet on a shaft and separating said second field magnet from said shaft, and said shaft is formed with a threaded portion serving as a bolt and an inner periphery of said second field magnet being formed with a thread for serving as a nut for connection in thread



- 25 -

engagement, and a stopper is provided at a position away from the side surface of said second field magnet.

6. A hybrid drive type vehicle as set forth in claim 2, wherein said  
5 electric rotary machine serves as an electric motor at low revolution speed range and having means for aligning said first and second field magnets at an initial position by balance between torque direction generated in the rotor and magnetic action between said first and second magnetic, and serves as a generator at high revolution speed range and  
10 having means for causing offset of the center of the same magnet poles of said first and second field magnetic associating with generation of the torque generated in the rotor in the opposite direction, and

said mechanism for varying the center of the magnetic pole associating with variation of the torque direction is constructed by rigidly  
15 securing said first magnet on a shaft and separating said second field magnet from said shaft, and said shaft is formed with a threaded portion serving as a bolt and an inner periphery of said second field magnet being formed with a thread for serving as a nut for connection in thread engagement, and a stopper is provided at a position away from the side  
20 surface of said second field magnet.

7. A hybrid drive type vehicle as set forth in claim 5, wherein said mechanism for varying the center of the magnetic pole associating with variation of the torque direction is constructed by rigidly securing said

first magnet on a shaft and separating said second field magnet from said shaft, and said shaft is formed with a threaded portion serving as a bolt and an inner periphery of said second field magnet being formed with a thread for serving as a nut for connection in thread engagement, and a  
5 stopper is provided at a position away from the side surface of said second field magnet, and a serve mechanism is provided for displacing said stopper in parallel to said shaft depending upon revolution speed.

8. A hybrid drive type vehicle as set forth in claim 6, wherein said  
10 mechanism for varying the center of the magnetic pole associating with variation of the torque direction is constructed by rigidly securing said first magnet on a shaft and separating said second field magnet from said shaft, and said shaft is formed with a threaded portion serving as a bolt and an inner periphery of said second field magnet being formed with a  
15 thread for serving as a nut for connection in thread engagement, and a stopper is provided at a position away from the side surface of said second field magnet, and a serve mechanism is provided for displacing said stopper in parallel to said shaft depending upon revolution speed.

20 9. An electric rotary machine comprising:

a stator having a primary winding and a rotor having a field magnet, said field magnet being constituted of a first field magnet alternately arranged mutually opposite magnetic poles in sequentially in circumferential direction and a second field magnet capable of causing

relative angular displacement relative to said first field magnet and alternately arranged mutually opposite magnetic poles in sequentially in circumferential direction, said first and second field magnets being opposing with a magnetic pole of said stator and having a mechanism for  
5 varying a phase of a magnetic pole resulting from combination of said first and second field magnets relative to the magnetic pole of said first field magnet depending upon direction of a torque of the rotor,

said mechanism for varying the magnetic pole depending upon the direction of the torque including means for aligning centers of the  
10 same magnetic poles of said first and second field magnets by balance between torque direction generated in the rotor and magnetic action between said first and second magnetic and means for causing offset of the center of the same magnet poles of said first and second field magnetic associating with generation of the torque generated in the rotor  
15 in the opposite direction.

10. An electric rotary machine as set forth in claim 9, wherein said mechanism for varying the center of the magnetic pole associating with variation of the torque direction is constructed by rigidly securing said  
20 first magnet on a shaft and separating said second field magnet from said shaft, and said shaft is formed with a threaded portion serving as a bolt and an inner periphery of said second field magnet being formed with a thread for serving as a nut for connection in thread engagement, and a stopper is provided at a position away from the side surface of said

- 28 -

second field magnet, and a serve mechanism for displacing said stopper in parallel to said shaft depending upon revolution speed.